CLAIMS

1. A fuel cell unit comprising at least one structural member, the structural member comprising two electrolyte/electrode bonded members each comprising a first electrode and a second electrode and an electrolyte membrane disposed between the electrodes, a conductive porous substrate disposed between the two electrolyte/electrode bonded members so as to be in contact with the two first electrodes of the two electrolyte/electrode bonded members, a conductive support member provided on the porous substrate so as to be electrically connected to the porous substrate and the two first electrodes, and an electrical connection means for electrically connecting the two second electrodes, which are not in contact with the porous substrate, of the electrolyte/electrode bonded members.

2. The fuel cell unit according to claim 1, wherein the conductive support member is electrically connected to the porous substrate and the two first electrodes through an opening part provided penetrating one electrolyte/electrode bonded member.

3. The fuel cell unit according to claim 1, wherein the electrical connection means electrically connects the two second electrodes of the two electrolyte/electrode bonded members via an insulating material that covers side surfaces of the

porous substrate and the two electrolyte/electrode bonded members.

4. The fuel cell unit according to claim 1, wherein the electrical connection means comprises a second electrode of two electrolyte/electrode bonded members formed by covering a side surface of a porous substrate with a continuous electrolyte/electrode bonded member.

5. The fuel cell unit according to claim 1, wherein an insulating support member is disposed on the electrolyte/electrode bonded member.

6. The fuel cell unit according to claim 1, wherein a sealing material is disposed on the electrolyte/electrode bonded member.

7. The fuel cell unit according to claim 1, which comprises a stack of at least two of the structural members set forth in claim 1, wherein the second electrode of the electrolyte/electrode bonded member of a first structural member and the second electrode of the electrolyte/electrode bonded member of an adjacent second structural member are stacked so as to face each other via an insulating sealing material, and the conductive support member connected to the first electrode of the electrolyte/electrode bonded member of the first structural member and the second electrode of the electrolyte/electrode bonded member of the adjacent second structural member are

electrically connected, whereby the electrolyte/electrode bonded members of the first structural member and the adjacent second structural member are connected in series.

8. The fuel cell unit according to claim 1, which comprises a stack of a first stacked member and a second stacked member each comprising a stack of at least two of the structural members set forth in claim 1, wherein the first and the second stacked members each has a constitution such that the second electrodes of the electrolyte/electrode bonded members of adjacent structural members are disposed so as to face each other via an insulating sealing material, the conductive support member connected to the first electrode of the electrolyte/electrode bonded member of one of the adjacent structural members and the second electrode of the electrolyte/electrode bonded member of the other of the adjacent structural members are electrically connected, and the conductive support member of the structural member positioned at an end of the stacked member has a portion exposed outside of the stacked member, and wherein the exposed portions of the conductive support members of the first and the second stacked members are electrically connected to form the stack of the first and the second stacked members.

9. The fuel cell unit according to claim 1, which comprises a stack of a first stacked member and a second stacked member each comprising a stack of two of the structural members set forth in claim 1, wherein the first and the second stacked members each has a constitution such that the second electrode of the electrolyte/electrode bonded member of the first structural member and the second electrode of the electrolyte/electrode bonded member of the adjacent second structural member are disposed so as to face each other via an insulating sealing material, the conductive support member connected to the first electrode of the electrolyte/electrode bonded member of the first structural member and the second electrode of the electrolyte/electrode bonded member of the adjacent second structural member are electrically connected, and the conductive support member of the adjacent second structural member has a portion exposed outside of the stacked member, and wherein the exposed portions of the conductive support members of the first and the second stacked members are electrically connected to form the stack of the first and the second stacked members.